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EXAMINER

MYINT, DENNIS Y

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/608,722	Applicant(s) DUNSMORE ET AL.	
	Examiner Dennis Myint	Art Unit 2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 58-100 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 58-61, 63-90 and 92-100 is/are rejected.
- 7) ☐ Claim(s) 62 and 91 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 May 2007 has been entered.
2. The amendment filed on 21 May 2007 has been received and entered. Claims 58-100 are currently pending in this application. Claims 58-100 are newly added claims. Claims 58, 90, 92, 94, and 98 are independent claims.

Response to Arguments

3. Applicant's arguments filed on 21 May 2007 have been considered but are not persuasive.

Referring to claim 58, Applicant argued that *Hensley et al.* does not provide for "replacing the first sub-hierarchy with the second sub-hierarchy comprising the step of associating the second root hierarchy and the single parentless root directory of the JFS through at least one internal pointer" as recited in independent claim 58 (Applicant's

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argument, Page 19 last paragraph). In response, it is pointed out that said limitation is taught by Hensley in view of Maurer III (the combination of Hensley and Maurer III) teaches said limitation in Paragraph 0112 of Maurer II as *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed: If desired, a restore can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.* In this combination, Hensley teaches using pointers to replace one sub-hierarchy with another (i.e., directory) in paragraph 0023 as *Next, the operating system configuration files that were copied to the new emergency directory hierarchy are modified, **to replace any references** to the original operating system directory structure with references to the new emergency boot directory hierarchy (block 62).* As such, the combination of Hensley and Maurer III teaches said limitation.

Additionally, Applicant argued that *Changing references in the emergency boot strap files to reference the emergency boot directory instead of the primary operating system directory structure is not equivalent to manipulating "at least one internal pointer of the HFS". The BOOT.INI file is simple plain text file that is kept in the system root by Windows operating systems. Changing the references clearly refers to editing the actual call lines within the BOOT.INI file to properly refer to the hidden emergency*

boot directory. This process does not involve internal pointers of the HFS, which is a computing task of lower level (e.g. closer to machine level) than high-level editing of a text file to reference a hidden directory (Applicant's argument, Page 20 third paragraph).

In response, it is pointed out that the method and system of Hensley "modifies" (not "edits") the memory references in the BOOT.INI as clearly recited in paragraph 0023 as *the operating system configuration files that were copied to the new emergency boot directory hierarchy are **modified***". Applicant's allegation that the method and system of Hensley "editing of a text file to reference a hidden directory" is not correct and inappropriate. In addition, "references" as taught by Hensley are "pointers" which points to memory locations in the computer system. In the art, whether "pointers"/"references" are embodied in either higher-level or lower-level languages are ultimately translated to binary codes (machine language) in order for the CPU to be able to read and execute said references/pointers. Hensley clearly teaches replacing references to point to locations in the memory, that is, sub-hierarchies or directories. Maurer III clearly teaches what Applicant calls "internal pointers of HFS" in paragraph 0112 as ***swapping logical units***, which clearly is swapping internal pointers of HFS. As such, Hensley in view of Maurer III clearly teaches the limitations of claim 58 in question.

The rest of the arguments referring to claim 58 which Applicant made are spurious and inappropriate. For example, on page 22, Applicant alleges that *Examiner has not specified, structurally, functionally or logically how the elements of Maurer III et al. computer system would be combined with the elements of the Hensley et al.*

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computer, or what their relationships would be (Applicant's argument, page 22 second paragraph). Applicant is advised to recursively review the above response Examiner provides referring to claim 58, which clearly explains how the combination of Hensley and Maurer III would anticipate the claimed invention.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 92-93 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claim 92, the claim recites "a computer readable medium". The specification of the instant application defines the computer readable in paragraph 0034 as *"the FSES module 16 is storable on a computer-readable medium, such as RAM, a hard drive, ROM, flash memory, a CD-ROM, a smart card, a diskette, etc., or **transmitted by propagated signals**"*. Propagated signal(s) does not fall in the four statutory categories. As such, claim 92 is not statutory.

Claim 93 is also rejected under 35 U.S.C. 101 because said claims depends on claim 92.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 75 rejected 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 75 in Line 3 recites the limitation "*the reconfiguring*". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 58-60, 63-72, 74, 76, 78- 85, 88, 89, and 92- 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley (hereinafter "Hensley") (U.S. Patent Application Publication Number 2004/0133790) in view of Maurer III et al. (hereinafter "Maurer") (U.S. Patent Application Publication Number 2003/0065780).

As per claim 58, Hensley is directed to a method for replacing a first sub-hierarchy of at least two sub-hierarchies of a hierarchical file system (HFS) (Paragraph 0018 and Figure 2) with a second sub-hierarchy of the at least two sub-hierarchies, the HFS having a parentless root directory and being accessible by at least one processor, wherein the HFS provides a mapping between a disk sector and user data (Paragraph 0017-0018 "*a protected, hidden, emergency boot directory containing a back-up copy of a computer operating system*") and teaches the limitations:

"providing for the first sub-hierarchy to include a first root directory stored in a first location of the HFS associated with the single parentless root directory of the HFS through at least one internal pointer, wherein the first sub-hierarchy includes a first plurality of files configured to branch from the first root directory" (Hensley, Figure 4: *Duplicate Primary Operating System Files*; and Paragraph 0022, i.e., *each of the original operating system files*. Note that every root directory is "parentless" because a root directory is the point from which all other sub-directories/sub-hierarchies branch

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out. In this claim language, "the single parentless root directory" is a common root directory as well known in the art because said directory has no parent (i.e., parentless) and "a first root directory" in this claim language, which is associated with the single parentless root directory (just a commonly known root directory), is in fact merely a sub-hierarchy because it is associated to the single parentless directory (i.e., a root directory in common terms) by way of a pointer just as any sub-hierarchies are associated to a root directory in the common art using pointers) and

"providing for the second sub-hierarchy to include a second root directory located in a second location" (*new emergency boot directory hierarchy*) "of the HFS, wherein the second sub-hierarchy includes a plurality of files configured to branch from the second root directory" (Hensley, Paragraph 0022, i.e., *However, the present invention is not limited to this configuration. The emergency boot directory could be located on the same hard disk, within a different, non-hidden partition. Alternatively, the emergency boot directory could be located on a different disk than the primary operating system.*); and

"replacing the first sub-hierarchy with the second sub-hierarchy comprising the step of:

"associating the second root directory and the single parentless root directory of the HFS through the at least one (internal) pointer" (Hensley, Paragraph 0023, i.e., *Next, the operating system configuration files that were copied to the new emergency directory hierarchy are modified, to **replace any references** to the original operating*

system directory structure with references to the new emergency boot directory hierarchy (block 62)).

Hensley does not explicitly teach the limitation:

"the at one internal pointer".

Maurer teaches the limitation:

"the internal pointer" (Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by **swapping to the logical unit accessed by the host**. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete. Note that swapping the logical unit means changing the association of one logical unit with another logical unit to a different logical unit by swapping/replacing respective pointers, effectively replacing the associated logical unit).*

Maurer teaches a method for a data storage system having data restore by swapping logical units, wherein a second root directory is relocated (restored to) to the first location (Maurer, Paragraph 0112).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of relocating a sub-hierarchy or unit to the first location by way of using internal pointers (i.e., swapping logical units) as taught by Maurer III et al. with the method and system of Hensley et al. so that the combined

method and system would provide for relocation of the second root directory to the first location. One would have been motivated to do so in order to *enable extraction of such logical information in a straight-forward non-complex and fast manner so that a surrogate computer could work with replicated copies in substantially the same manner as the original source computer that had operated with standard data* (Maurer Paragraph 0010).

As per claim 59, Hensley in view of Maurer III teaches the limitation:

"wherein the associating step further comprises the step of reconfiguring the second plurality of files to branch from the second root directory when the second root directory is accessed through the first location" (Hensley, Paragraph 0025-0026 and Paragraph 0030, i.e., *with references to the new emergency boot directory*).

As per claim 60, Hensley in view of Maurer III teaches the limitation:

"wherein the associating step further comprises the step of configuring the first plurality of files to branch from the first root directory including once the first root directory is accessed through the second location" (Hensley, Paragraph 0025-0026 and Paragraph 0030).

As per claim 63, Hensley in view of Maurer III teaches the limitation:

"wherein associating step is performed without copying content of the first or second plurality of files" (Maurer III, Paragraph 0112, i.e., *In the case where the first*

*logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.”).*

As per claim 64, Hensley in view of Maurer III teaches the limitation:

“wherein the first and second sub-hierarchies are mutually exclusive” (Hensley, Paragraph 0022).

As per claim 65, Hensley in view of Maurer III teaches the limitation:

“further comprising the step of manipulating the at least one pointer of the HFS for replacing selectable portions of data from the first sub-hierarchy with corresponding data from the second sub-hierarchy” (Maurer III, Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided*

after mirror synchronization for the restore is complete.”). Note that swapping the logical unit means changing the association of one logical unit with another logical unit to a different logical unit by swapping/replacing respective pointers, effectively replacing the associated logical unit).

As per claim 66, Hensley in view of Maurer III teaches the limitation:

“wherein the HFS is a readable file system throughout the associating step”
(Hensley, Paragraph 0021-0024).

As per claim 67, Hensley in view of Maurer III teaches the limitation:

“further comprising the step of providing for first and second operating systems associated with first and second sub-hierarchies respectively, the first and second operating system being executable on the at least one processor in the respective first and second sub-hierarchies” (Hensley, Paragraph 0022-0024).

As per claim 68, Hensley in view of Maurer III teaches the limitation:

“wherein the physical location of the first and second root directories is unchanged by and after the associating step” (Hensley, Paragraph 0022-0024 and Maurer III, Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host).*

As per claim 69, Hensley in view of Maurer teaches the limitation:

“the step of allowing access by an operating system executed on the at least one processor to at least one of the first and second sub-hierarchies when at least one of the first and second sub-hierarchies is associated with the single parentless root directory of the HFS” (Hensley Paragraph 0025-0026 and Maurer Paragraph 0112. i.e. *swapping the logical unit.*) Note that Paragraph 0055 of Maurer states that *Mirrors can be “synchronized” in either direction (i.e., from the BCV to the standard or visa versa).*

As per claim 70, Hensley in view of Maurer III teaches the limitation:

“wherein the HFS resides upon a single storage medium selected from the group of storage media consisting of physical and virtual storage media” (Hensley, Paragraph 0022).

As per claim 71 Hensley in view of Maurer III teaches the limitation:

“wherein the storage medium is a disk” (Hensley, Paragraph 0022-0024).

As per claim 72, Hensley in view of Maurer III teaches the limitation:

“wherein the HFS resides on one of a single partition and a single volume of the medium” (Hensley paragraphs 0022-0024 and Maurer III 0111-0113. Note that in any FAT system, HFS resides on a single partition/volume, which is a notoriously well known in the art).

As per claim 74, Hensley in view of Maurer teaches the limitation:

“wherein the content of the first sub-hierarchy includes an upgrade of contents of the second sub-hierarchy” (Hensley, Paragraph 0030, and Maurer, Paragraph 0112).

As per claim 76, Hensley in view of Maurer III teaches the limitation:

“wherein the first and second sub-hierarchies provide different user environments” (Hensley, Paragraph 0028). The system and method taught by Hensley accommodates multi-user environments.

As per claim 78, Hensley in view of Maurer III teaches the limitation:

“wherein the replacing is performed without altering one of an electrical and physical connection” (Hensley paragraphs 0022-0024 and Maurer, Paragraph 0112).

As per claim 79, Hensley in view of Maurer III teaches the limitation:

“wherein the HFS uses one of an NTFS and a FAT HFS implementation”
(Hensley Figure 2, i.e., *HARD DRIVE C:*).

Claim 80 is rejected on the same basis as claim 58.

Claim 81 is rejected on the same basis as claim 63.

Claim 82 is rejected on the same basis as claim 70.

Claim 83 is rejected on the same basis as claim 71.

Claim 84 is rejected on the same basis as claim 72.

Claim 85 is rejected on the same basis as claim 78.

Claim 88 is rejected on the same basis as claim 68.

Claim 89 is rejected on the same basis as claim 79.

Claim 92 is rejected on the same basis as claim 58.

Claim 93 is rejected on the same basis as claim 70.

Claim 94 is rejected on the same basis as claim 58.

Claim 95 is rejected on the same basis as claim 59.

Claim 96 is rejected on the same basis as claim 65.

Claim 97 is rejected on the same basis as claim 60.

Claim 98 is rejected on the same basis as claim 58.

8. Claim 61 and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer III and further in view of Gupta (U.S. Patent Application Publication Number 2002/0138502).

As per claim 61, Hensley in view of Maurer III teaches the limitations:

“the second root directory is provided with a parent directory, a parent pointer and a self pointer” (Hensley Figure 2, i.e., *HARD DRIVE C:* . Particularly note that Hensley is a FAT system (notice *HARD DRIVE C:*, which embodies FAT system) and all the directories on a FAT system, except the root directory (i.e., *C:*) comprise parent pointer and self-pointer in order to be integral part of the FAT hierarchical system).

Associating a volume with the root directory is inherent Hensley in view of Maurer but is not explicitly taught. Also, Hensley in view of Maurer III does not explicitly teach

the limitations: "associating the volume label with the second root directory in stead of the first root directory, removing the self and parent pointers form the second root directory and providing the self and parent pointers to the first root directory; and updating the parent directory of the second root directory to hold a value which corresponds to the second location".

On the other hand, Gupta teaches said limitations:

"associating the volume label with the second root directory in stead of the first root directory" (Gupta Paragraph 0026, Figure 2, Paragraph 0030, and particularly paragraph 0033 and 0034), "removing the self and parent pointers form the second root directory and providing the self and parent pointers to the first root directory; and updating the parent directory of the second root directory to hold a value which corresponds to the second location" (Paragraphs 0034, 0037, and 0038).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of associating the volume label from a root directory to another root directory and updating pointers of root directories to conform to file system reorganization such as removing self and parent pointers and updating self and parent pointers according to the new file system organization, as taught by Gupta, to the method of Hensley in view of Maurer III so that the resultant would comprise associating the volume label from a root directory to another root director and removing/updating self and parent pointers to conform to file system reorganizations. One would have been motivated to do so in order to render a file system, which contain

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separate file hierarchies, appear to the user or application program as a single file system (Gupta Paragraph 0009).

Claim 90 is rejected on the same basis as claim 61.

9. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer and further in view of Mansur et al. (U.S. Patent Application Publication Number 2002/0095548).

Referring to claim 73, Hensley in view of Maurer is directed to the system and method of claim 1 but does not expressly disclose the limitation: "wherein the second location is associated with a container directory branching from the root directory of the HFS".

However, Mansur teaches the limitation:

"wherein the second location is associated with a container directory branching from the root directory of the HFS" (Paragraph 0045). Mansur teaches a system and method for storage system controller configuration wherein a backup directory, containing more directories inside, is used (Mansur et al., Paragraph 0045).

A the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of associating with a container directory branching from the root directory of the HFS as taught by Mansur et al. to the system and method taught by Hensley in view of Maurer III et al. as applied to claim 1 so that

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the resultant system and method would provide a backup directory branching from the root directory of the HFS and not included in the at least two sub-hierarchies, from which branch respective sub-hierarchies of the at least two sub-hierarchies other than the sub-hierarchy of the at least two sub-hierarchies having its root directory located in the first location. One would have been motivated to do so in order to simply "to restore the directory in the event the primary directory location or primary lock becomes corrupted" (Mansur et al., Paragraph 0045).

10. Claim 75, 86, 87, 99, and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer and further in view of Fujihara (U.S. Patent Number 5778371).

As per claim 75, Hensley in view of Maurer III teaches replacing root directories by manipulating pointers. Hensley in view of Maurer III does not explicitly teach the limitation: "wherein before the replacing step, the first root at a higher hierarchical level than the second root directory, and after the reconfiguring step the second root directory is at a higher hierarchical level than the first root directory".

Fujihara teaches the limitation:

wherein before the replacing step, the first root (node) at a higher hierarchical level than the second root directory (node), and after the reconfiguring step the second root directory (node) is at a higher hierarchical level than the first root directory (node)" (Fujihara, Column 11 Lines 53 through Column 12 Lines 4).

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At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of replacing a node/directory at a higher level with one at a lower level in the hierarchy, as taught by Fujihara, to the method of Hensley in view of Maurer III so that, in the resultant method, the first root would be at a higher hierarchical level than the second root directory before reorganization and, and after the reconfiguring step, the second root directory would be at a higher hierarchical level than the first root directory. One would have been motivated to do so in order to "allow us to retrieve data from a simply-structured data or with a simple procedure" (Fujihara, Column 5 Lines 19-24).

Claim 86 is rejected on the same basis as claim 75.

As per claim 87, Hensley in view of Maurer III and further in view of Fujihara teaches the limitation:

"wherein the HFS is a readable file system throughout the associating step" (Hensley, Paragraph 0021-0024).

Claim 99 is rejected on the same basis as claim 86.

As per claim 100, Hensley in view of Maurer III and further in view of Fujihara teaches the limitation:

"wherein associating step is performed without copying content of the first or second plurality of files" (Maurer III, Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.*").

11. Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer and further in view of Moore et al., (hereinafter "Moore") (U.S. Patent Application Publication Number 2004/0123064).

As per claim 77, Hensley in view of Maurer III does not explicitly teach the limitation: "wherein the first and second addresses of the first and second root directories are associated with first and second cluster numbers corresponding the first and second root directories respectively."

Moore teaches the limitation:

"wherein the first and second addresses of the first and second root directories are associated with first and second cluster numbers corresponding the first and second root directories respectively" (Moore, Paragraph 0032, i.e., *the starting cluster number is*

set to cluster 5 in the directory entry). Note that Moore teaches associating cluster numbers to directories. Directories already have addresses in the file allocation table.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of associating directory addresses with cluster numbers, as taught by Moore, to the method of Hensley in view of Maurer III so that, in the resultant method, the first and second addresses of the first and second root directories would be associated with first and second cluster numbers corresponding the first and second root directories respectively. One would have been motivated to do so in order to reference directories and clusters, which is a well know feature in the art such as in Windows file systems.

Allowable Subject Matter

12. Claims 62 and 91 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter. Referring to claims 62, Hensley in view of Maurer III as applied to claim 60 fails to teach what claim 62 of the claimed invention recites:

“wherein the HFS implementation is an NTFS implementation, the HFS is provided with file records storing directory attribute data corresponding with the first and second root directories, the first root directory is provided with at least one special

system file which is exclusive to the parentless root directory, the second root directory is provided with a placeholder file which corresponds to each of the special system files, the first and second root directories are each provided with at least one file entry, the respective file entries of the first and second root directories are provided with corresponding owning directories, and the respective owning directories are provided with corresponding back-pointers, and wherein the associating step further comprises the steps of:

- exchanging owning directories corresponding to the file entries of the first root directory with owning directories corresponding to the file entries of the second root directory;

- exchanging the owning directory back-pointers of the first root directory with corresponding owning directory back-pointers of the second root directory;

- exchanging the contents of the at least one special system file with content of corresponding files of the at least one placeholder file; and

- exchanging directory attribute data of the file record associated with the first root directory with directory attribute data associated with the second root directory”.

Therefore Claim 62 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Claim 91 is objected on the same basis as claim 62.

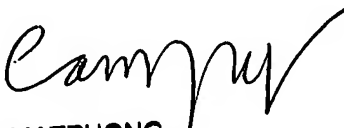
Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint
Examiner
AU-2162


CAM-Y TRUONG
PRIMARY EXAMINER